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WASHINGTON, DC 20005-3096

EXAMINER

NGUYEN, THU V

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3661

DATE MAILED: 01/13/2003

38

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

08/748,935

Applicant(s)

IMAI ET AL

Examiner

Thu V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,3,5,9-22,29,34,35,37-40 and 45 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☒ Claim(s) 9-22 and 37 is/are allowed.

- 6) ☒ Claim(s) 2,3,5,29,34,35,38-40 and 45 is/are rejected.

- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

The amendment filed on October 28, 2002 has been considered. By this amendment, claims 2, 29, 34, 38, 40, and 45 have been amended, and claims 2-3, 5, 9-22, 29, 34-35, 37-40, and 45 are now pending in the application.

#### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - a. In the specification page 9, lines 3-15, several details such as the coordinates wx, wy, etc should be illustrated in the drawings.
  - b. In the specification page 12, line 12, the "end point of the axis AX1" should be illustrated in the drawings. What is the end point AX1?
  - c. In the specification page 21, lines 4-5, the "point R" should be illustrated in the drawings. What is point R?

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claims 38-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 38, lines 10-11, the claimed limitation “the second portions including at least one portion different from any one of the first portions” is ambiguous and is not fully disclosed in the specification. It is not clear what should be the second portions, how the second portion should be selected or allocated. The specification teaches modifying the data by adding, moving or deleted a line on the model, but the specification does not explicitly teach the portions on the model as claimed.

Claims 39-40 are rejected as being dependent on the rejected base claim.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 5, 29, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (U.S Patent No. 5,615,318).

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As per claim 29, and 45, Matsuura teaches a computer-implemented method of generating three-dimensional form data the method comprises the steps of: obtaining an electronic data of a three dimensional form model (col.7, lines 42-50); generating a plurality of lines along a surface of the model (col.12, lines 7-20, lines 43-50; col.14, lines 24-33); modifying the lines in response to a user instruction that includes an adding or a movement of a line so that the plurality of lines still correspond to contour of the model (col.20, lines 3-7, lines 61-67; col.20, lines 18-23).

Matsuura does not explicitly disclose that the generated lines correspond exactly to contours of the model after the modification. However, Matsuura teaches that the corresponding level of the lines to the contours of the model is determined from the expansion factor (col.8, lines 47-59; col.11, lines 34-47), and mapping the added lines to the existing model (col.20, lines 37-47). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to adjust the expansion factor of Matsuura to zero in order to obtain the generated lines that corresponds exactly to the contours of the model, since adjusting a value to obtain appropriate relative position of the lines to the contour of the model requires only routine skill in the art.

As per claim 2, 5, refer to claim 29 above. Matsuura does not explicitly teach that the lines comprises parametric or splines curve groups. However, expressing the lines in parametric or spline curves would have been well known. It would have been obvious to a person of

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ordinary skill in the art at the time the invention was made to express the lines of Matsuura in parametric or splines curves format in order to facilitate manipulating the lines by changing the parameter of the expression of the lines.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (U.S Patent No. 5,615,318) in view of Letcher, Jr. (U.S Patent No. 5,627,949).

As per claim 3, Letcher teaches defining control points and moving control points along the surface of a model (col.16, lines 29-40). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the control point taught by Letcher to move the lines along the surface of the object of Matsuura. The motivation for this would have been to provide the user a convenient graphical user interface so that the user can adjust the lines of Matsuura to obtain a desired amount of lines he needs.

6. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (U.S Patent No. 5,615,318) in view of Sato et al (U.S Patent No. 5,754,680) (Sato '680).

As per claim 34, Matsuura does not explicitly teach generating the sum data representing the modified generated lines such that the quantity of the summary data is smaller than the quantity of the three dimensional form data. However, Matsuura teaches the capability to obtain three dimensional form data (col.7, lines 43-48) and the capability of deleting the generated lines (col.20, lines 3-7), and Sato '680 teaches generating a sum of data for representing modified lines

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with summary data that is smaller than the quantity of the obtained three dimensional form data (col.8, lines 53-61). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to represent the generated lines of Matsuura with data and represent lines with the summary data that is smaller than the three dimensional form data as taught by Sato in order to simplify the design and to reduce the number of data to increase data processing speed.

As per claim 35, Matsuura teaches obtaining the electronic three dimensional form data from a camera (col.7, lines 43-48). Matsuura does not explicitly disclose a generator for generating the electronic data. However, Sato '680 discloses a generator that provides electronic data representing a three dimensional model (col.5, lines 16-19). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the generator of Sato to the shape input unit of Matsuura in order to convert the analog data from the camera of Matsuura to digital data that is compatible with the microprocessor of Matsuura.

7. Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (U.S Patent No. 5,754,680) .

As per claim 38, Sato teaches receiving a first electronic data of a three dimensional model (col.3, lines 29-38). Further, since Sato teaches a first set of data that corresponds with the three dimensional model exactly (col.3, lines 29-38; col.5, lines 16-19), and since the first set of data is obtained from the complete surface of the model, it would have been obvious to obtain

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the second and third set of data that correspond exactly on the first and second portions of the model when only portions or a portion of the first data representing the first portions and the second portion is extracted, since extracting a subset of data as needed from the first set of data requires only routine skill in the art. Further, selecting any second interested portion or portions which are different or the same as the first selected portions on the model to count and to generate the second and third set of data requires only routine skill in the art.

As per claim 39-40, Sato '680 discloses generating the second and third data which are extracted from the first data (col.8, lines 44-61). Sato '680 does not explicitly teach projected lines. However, projecting lines onto a surface of an object would have been well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made project lines onto the surface of Sato '680 in order to easily generating lines on a surface using conventional line projection method. As to claim 40, Sato '680 does not explicitly disclose changing the positions of the first and second portions by changing the lines to be projected. However, Sato '680 discloses lines that makes patches and changing the patches to modify the set of data (col.8, lines 53-57; col.6, lines 1-4). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to change the patches of an area by adjusting the lines which define the patches in order to change the quantity of data.



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***Allowable Subject Matter***

8. Claims 9-22, and 37 are allowed.

9. The following is an examiner's statement of reasons for allowance:

Prior art of record does not disclose a method for generating three dimensional form data in which a three dimensional form data representing a three dimensional form model is prepared; a plurality of two-dimensional horizontal closed curves encircling the three dimensional form model but having a space to the three dimensional form model, and a plurality of vertical lines intersecting the closed curves to the three dimensional model are projected around the model; the group of curves can be modified with adding, deleting, or moving operation.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

10. Applicant's arguments filed October 28, 2002 have been fully considered but they are not persuasive.

In response to applicant's argument on page 6, last paragraph, page 7, lines 1-5, and first paragraph, Matsuura does teach allowing the user to instruct the modification of the lines in col.20, lines 18-28.

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In response to applicant's argument page 7, last paragraph, page 8, first paragraph, refer to section 112 2nd paragraph, and 35USC 103 rejection above. Claim 38 does not explicitly disclose generating a plurality of data through a plurality of stages, instead, claim 38 just disclosed generating the second and third data on different portions of a model. Sato teaches a first set of data (col.3, lines 33-38), it would have been obvious to generate (to provide or to select) the second set, and third set of data lying on the same or different interested portions of the object.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**Any response to this final action should be mailed to:**

**Box AF**

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 305-7687, (for formal communications; please mark "EXPEDITED  
PROCEDURE")

**Or:**

(703) 305-7687 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451 Crystal  
Drive, Arlington, VA., Seventh Floor (Receptionist).


Any inquiry concerning this communication or earlier communications from the examiner  
should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner  
can normally be reached on Monday-Thursday from 8:00 am to 6:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
supervisor, William Cuchlinski, can be reached on (703) 308-3873. The fax phone number for  
this Group is (703)305-7687 .

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Group receptionist whose telephone number is (703)308-1113.

TVN

January 8, 2002

  
WILLIAM A. CUCHLINSKI, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600